

FLW Broadband Network Services

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- Broadband Software FLW
- Full Circle Conference
- Added Value
- Demonstration
- New Switching Paradigm
- Next Steps

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Forward Looking Work

Broadband Software and Services FLW

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- Build software lab
 - Create new broadband services demonstrating convergence
 - Reuse hardware and software assets
 - Acquire softswitch platform
 - Develop VoIP and softswitching applications
 - Enhance voice services using IP capabilities
 - Acquire screen phones and develop Web Phones
 - Develop Web Portal
- Build partnerships
 - 7R/E MMRS
 - Excel, Full Circle
 - Platform Independent Services
 - Research
 - FLW Netherlands

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FLW Program overview

We explored the state of the art in software switching and selected a softswitch software from BL research to build our lab infrastructure.

One of our goal was to explore existing services enhancements and new types of services enabled by softswitch and the convergence of voice and data in IP telephony (patent proposals).

We reused existing equipment and a variety of software platform and resources to bring-up our first VoIP call on softswitch Jan 2000.

We leveraged past work and projects (Inferno Lucent Ventures) acquired IS2630 phone, reused previous BCS/research that we further developed to provide quality end-point to showcase softswitch and Web enabled services.

Pascal joined us from 7R/E development in early 2000 and developed the web integration software enabling call control from any browser. Leveraging open source software to provide the infrastructure for the Web Portal.

Full Circle Conference

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- What is the Full Circle Program
 - An open API technology to facilitate development across Lucent platforms.
 - Marketing support programs for deployment of next-generation services.
 - A comprehensive suite of NetworkCare professional services.
- Architecture
 - softswitch, resource servers, endpoints, web server, databases
- Capabilities demonstrated
 - Web Portal
 - Web phones
 - Conferencing and Forwarding from standard web browser
- Integration of PLUSS from Netherlands
 - Parlay API
 - Server Provider Servlet API
- Success stories
 - NTT - (gateway protocol and IP Conferencing)
 - Mediarling - (Web based IP Conferencing)
 - OSPS / BT - (Web based IP Click to Call)
 - AT&T - (Parlay API)

conference service

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Software Assembly

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Open Source

Apache
LDAP
Keryx
Linux

Bell-Labs Research

Elemedia
Excel
MMRS
Java
Solaris

FLW Netherlands

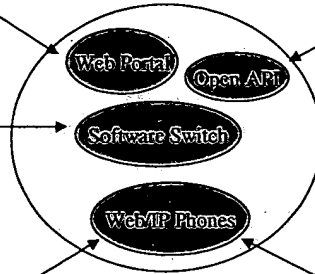
Parlay API
CORBA

BCS

Philips
Lucent LCP
Inferno OS

IHP BL Research

Sagitta
(Taiwan)
H.323 phones



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FLW Added Value

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- Accomplished with open source software
 - Apache Web Server, SQL, LDAP, Keryx, "softswitch"
- Web Portal Telephony Interface
 - Standard Browser
 - No Downloaded Software
- Web Server Communication to softswitch
 - API to softswitch for Telephony control and call status
 - softswitch notifications of call status to interface
- Ease of accessibility to telephony features
 - Call Forward provisioning
 - Conference management
- Real endpoints to demonstrate consumer applicability
 - Webphones (Lucent)
 - Sagitta (Taiwan) H.323 IP phones
 - PC endpoints (Netmeeting)

Browser
access
to services

Conference
service

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A New Switching Paradigm

Softswitch + Open API = Ubiquitous Switching

- Software only solution to switching
 - Software Gateways - (H.323, SIP, SS7)
 - Software Resource Servers (Elemedia)
- Open API for ease of application generation
 - Use of industry standards
 - Parlay, Jain, JTAPI
- Offers 3rd party programmability
 - ASP and ISP
 - Home businesses or Communities

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Gateways

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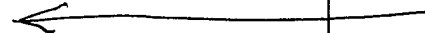
Open Interface to LSS

- Enables VoIP and WebPortal Services:
 - 3rd party programmability via Parlay/CORBA API to LSS
 - WebPortal service access
 - Support a variety of consumer devices:
 - PC, Web Phones, IP phones
 - 1st and 3rd party call control, call forwarding and conferencing using 7R/E MMRS or Elemedia

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Web Portal



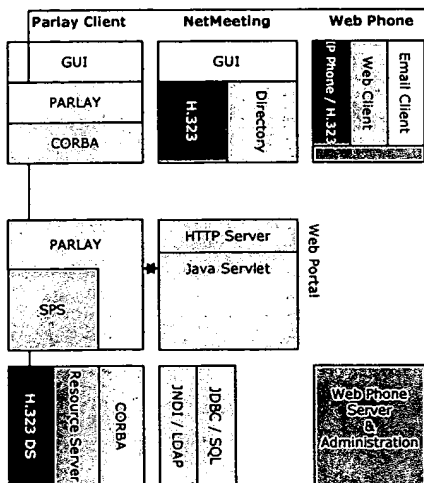
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Open Interface to LSS - Software

Endpoint
Services
Infrastructure



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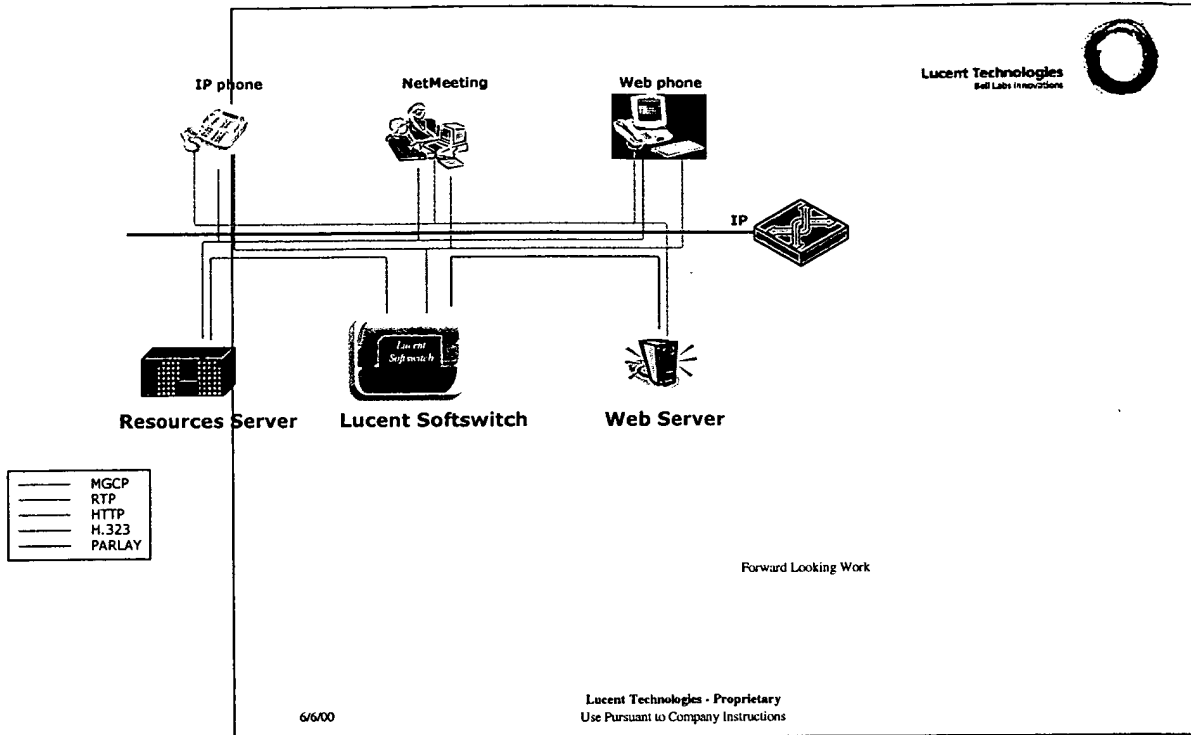
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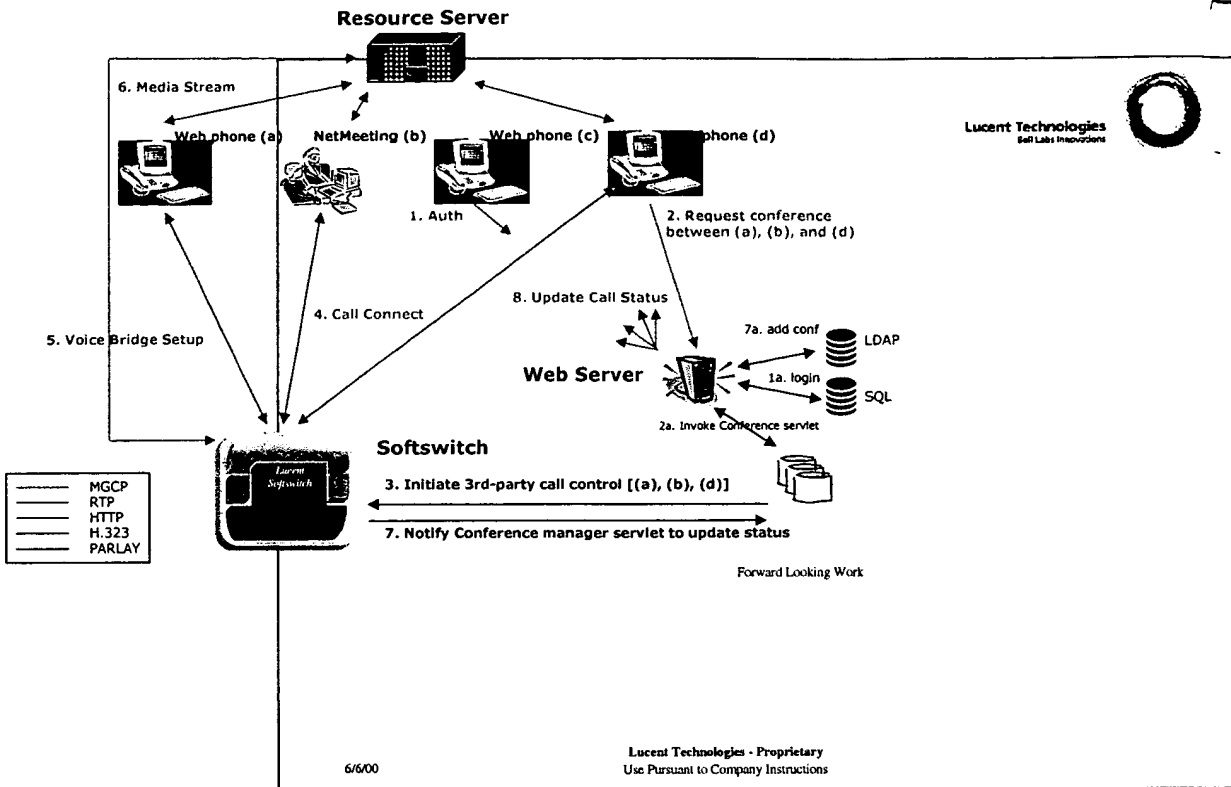
VoIP and WebPortal - Communication

Network
architecture



VoIP and WebPortal - Scenario

Conference with server storage



IP Telephony Opportunity

- Growing numbers IP Telephony Users (18M users)
- Projection of Broadband Internet > 12M by 2002
- Broadband Internet in 10% of US homes by 2002
 - New generation Internet users expect new services
- Broadband access used by Small Businesses
 - B2B Internet sharing - Virtual companies unified over Web

→ Broadband access enables IP Telephony via soft switching

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S:

y's IP Telephony dialpad.com (5M), mediaring.com (3M), net2phone.com (>10M)

dband Internet in 10% of US homes by 2002

quest 1999 estimates 10M Cable/DSL users by 2002. BFA 3 millions over next 3 years.

ction by 2002

Broadband access provides up to 80% of Internet traffic to households.

This number is in question and based on the perception that always-on access at 1Mbps can generate two orders of magnitude more traffic than occasionally connected 56k modem users whose experience will degrade every year (web site contents growing and more demanding on bandwidth).

Represent as much as 80% of Internet-based consumer purchases. This number is based on the observation that the 10% broadband access are to more affluent users and home business owners.

New generation Internet users expect new services

Home residences are IP wired, always on-line, one IP network for data and voice services, work from home, web savvy, new enterprises start from home.

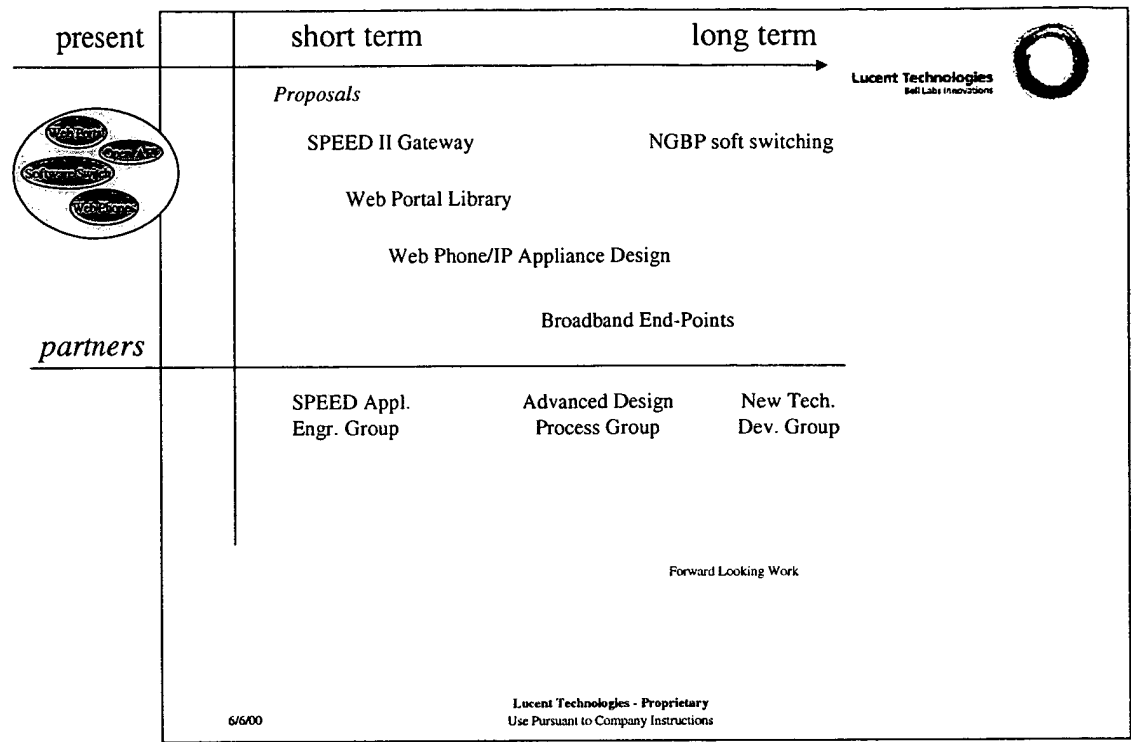
Broadband access in Small Businesses:

Over 75% of all US Businesses are potential users of VoIP services

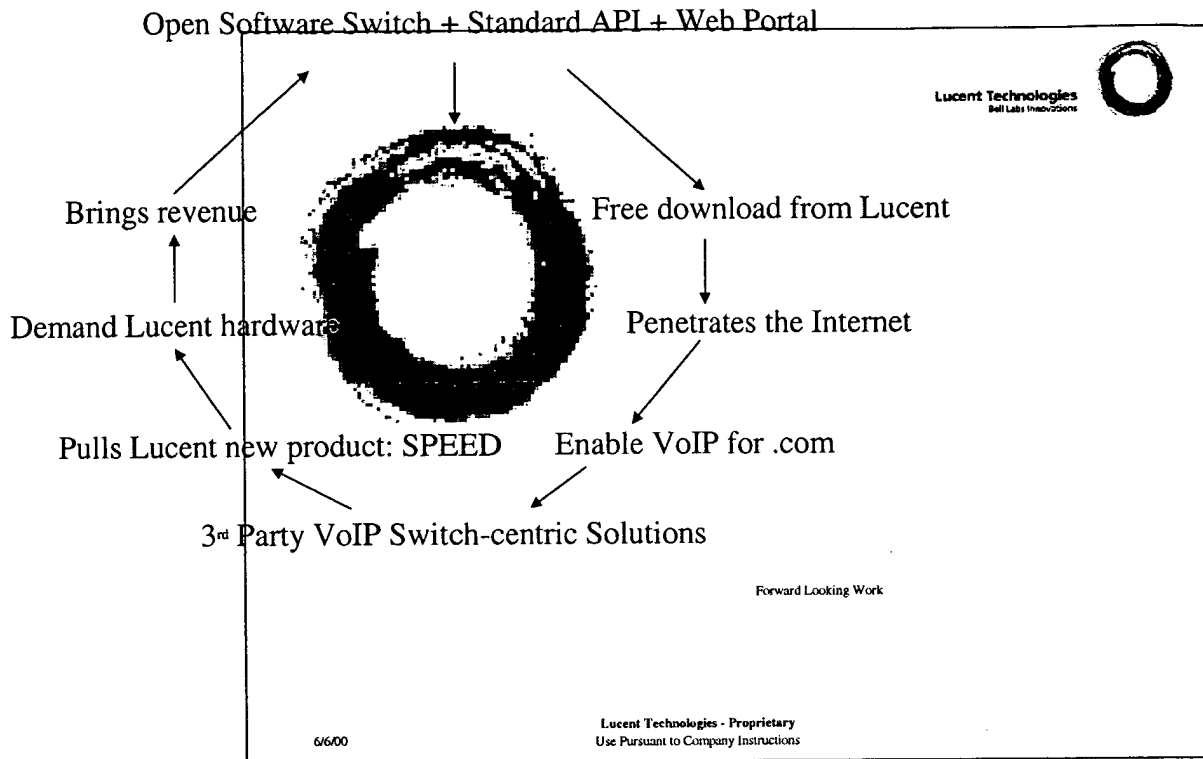
B2B Internet sharing - Virtual companies unified over Web

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Current Lucent Business track



Leading the VoIP Innovation Cycle



Leading a switch-centric VoIP evolution

Open source package available from Lucent site:

Software switches support telephony on LAN Web - Portal Module enables VoIP from the Web sites

Open API enables 3rd party programmability:

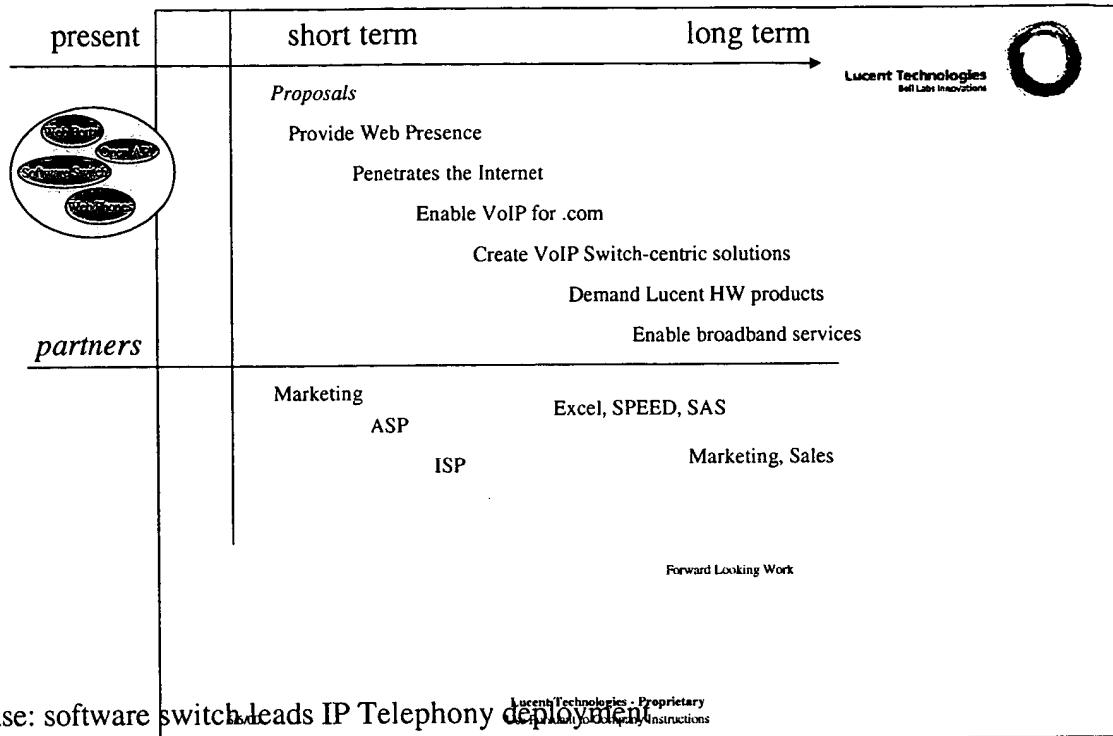
Top 10 .com provide voice at their Web sites -Application: help line, call center, sale assistance

Switch-centric solutions penetrate Web companies

Building-up VoIP creates demand for new Hardware: Excel (Softswitch), SPEED Protocol Mixers and Gateways, NGBP

Open Software Switching package creates new market for Lucent Switching Business

Pushing and Leading a Growing Market



Best case: software switch leads IP Telephony deployment

By 2003 IP Telephony deployed to >10% households and small businesses in the US

Central Office changes to support: Single broadband connection to the home for all communications

IP telephones (and PC) in the home as multiple virtual lines

Deploy SPEED as Protocol Mixer with 7E/5ESS to:

Terminate IP calls in the CO - redirect long distance over PSTN

Seamlessly integrate: VoIP + PSTN + Wireless

RBOCS: SPEED adjunct to 5ESS helps capitalize on ASP/ISP VoIP business

Enable new broadband services for home and small businesses

Worst case: IP Telephony deployment w/o software switching

By 2003 IP Telephony is deployed to >10% households in US

Microsoft + Intel own over 90% the IP End-Points

Client enabled VoIP solutions are predominantly used

ASP/ISP are leading the telephony conversion to IP:

Single broadband connection to the home for VoIP + data communications

PSTN gateways are mainly deployed by ISP/ASP:

Up to 10% of long distance calls are redirected via the Internet

ASP/ISP provide PC telephony to PSTN calls

RBOCS: Follow the trend and deploy gateways via their own ISP branches

New broadband services are driven by PC software providers

Next Steps Summary

- Project proposals:
 - SPEED II gateway project
 - Web Portal project
 - Next Generation end-points
 - NGBP enabled Softswitch
- Marketing and competitive study of VoIP for software switch

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